

Algebra 1R

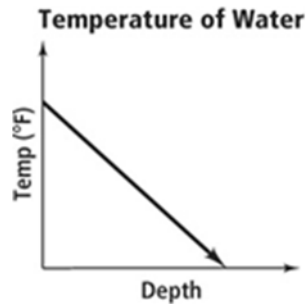
Midterm Review

Section 1

_____ 2) *Bacillus cereus* is a soil-dwelling bacterium that sometimes causes food poisoning. Each cell divides to form two new cells every 30 minutes. If a culture starts out with exactly 100 bacterial cells, how many bacteria will be present after 3 hours?

- (1) 100
- (2) 800
- (3) 6400
- (4) 9000

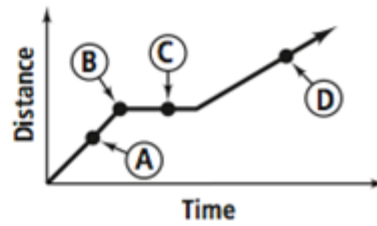
_____ 5) Describe how the variables are related on this graph.



- (1) The volume increases at a constant rate as time increases.
- (2) The temperature decreases at a constant rate as the depth increases.
- (3) The height of a plant increases at a constant rate as time increases.
- (4) The temperature increases at a constant rate as the depth decreases.

____8)

The graph shows your distance from the practice field as you go home after practice. You received a ride from a friend back to his house where you ate supper. You then walked home from there. Which point represents a time when you are walking home?



- A. A B. B C. C D. D

____9) Which expression represents "5 less than the product of 7 and x "?

- 1) $7(x - 5)$
- 2) $7x - 5$
- 3) $7 + x - 5$
- 4) $5 - 7x$

____10) Which equation illustrates the distributive property?

- 1) $5(a + b) = 5a + 5b$
- 2) $a + b = b + a$
- 3) $a + (b + c) = (a + b) + c$
- 4) $a + 0 = a$

Section 2

____ 1) Which algebraic expression represents 15 less than x divided by 9?

- 1) $\frac{x}{9} - 15$
- 2) $9x - 15$
- 3) $15 - \frac{x}{9}$
- 4) $15 - 9x$

____ 2) The quotient of $-\frac{15x^8}{5x^2}$, $x \neq 0$, is

- 1) $-3x^4$ 2) $-10x^4$ 3) $-3x^6$ 4) $-10x^6$

_____ 3) Which expression represents $(3x^2y^4)(4xy^2)$ in simplest form?

- 1) $12x^2y^8$
- 2) $12x^2y^6$
- 3) $12x^3y^8$
- 4) $12x^3y^6$

_____ 4) Which expression is equivalent to $-3x(x-4) - 2x(x+3)$?

- 1) $-x^2 - 1$
- 2) $-x^2 + 18x$
- 3) $-5x^2 - 6x$
- 4) $-5x^2 + 6x$

_____ 5) The sum of $3x^2 + 4x - 2$ and $x^2 - 5x + 3$ is

- 1) $4x^2 + x - 1$
- 2) $4x^2 - x + 1$
- 3) $4x^2 + x + 1$
- 4) $4x^2 - x - 1$

_____ 6) What is the product of $\frac{1}{3}x^2y$ and $\frac{1}{6}xy^3$?

- 1) $\frac{1}{2}x^2y^3$
- 2) $\frac{1}{9}x^3y^4$
- 3) $\frac{1}{18}x^2y^3$
- 4) $\frac{1}{18}x^3y^4$

_____ 7) The expression $(2x^2 + 6x + 5) - (6x^2 + 3x + 5)$ is equivalent to

- 1) $-4x^2 + 3x$
- 2) $4x^2 - 3x$
- 3) $-4x^2 - 3x + 10$
- 4) $4x^2 + 3x - 10$

_____ 8) The expression $x^2 + 2x$ is a:

- 1) monomial
- 2) binomial
- 3) trinomial
- 4) constant

_____ 10) Which equation illustrates the associative property of addition?

- 1) $x + y = y + x$
- 2) $3(x + 2) = 3x + 6$
- 3) $(3 + x) + y = 3 + (x + y)$
- 4) $3 + x = 0$

Section 3

_____ 1) The quotient of $-\frac{15x^6}{5x^2}$ is,

- a) $-3x^4$
- b) $-10x^4$
- c) $3x^4$
- d) $-3x^8$

_____ 2) Which of the following represents the commutative property of addition?

- a) $2 + (5 + 6) = (2 + 5) + 6$
- b) $-2 + 4 = 4 + -2$
- c) $(-8 + 3) + 6 = -3 + (8 + 6)$
- d) $-9(x + 2) = -9x - 18$

_____ 3) Which expression represents $(3x^2y^4)(4xy^2)$ in simplest form?

- a) $12x^2y^8$
- b) $8x^2y^6$
- c) $12x^3y^6$
- d) $8x^3y^8$

_____ 4) Subtract: $(10x + 5) - (4x + 12)$.

- a) $14x - 7$
- b) $14x + 17$
- c) $6x - 7$
- d) $6x + 17$

_____ 5) Multiply the two binomials: $(2x - 4)(2x + 2)$

- a) $4x^2 + 8$
- b) $4x^2 - 8$
- c) $4x^2 + 12x - 8$
- d) $4x^2 - 4x - 8$

_____ 6) The expression $2x^2 - x^2$ is equivalent to:

- a) x^0
- b) 2
- c) x^2
- d) $-2x^4$

_____ 7) Multiply: $(x + 7)(x + 3)$

- a) $x^2 + 10x + 21$
- b) $x^2 + 4x + 10$
- c) $x^2 + 21x + 10$
- d) $x^2 + 3x + 21$

_____ 8) Write as a mathematical expression:

Six more than the product of 3 and a number k

- (a) $3k - 6$
- (b) $6 - 3k$
- (c) $6k + 3$
- (d) $6 + 3k$

_____ 10) $-3(12 + 4) = (-3 \times 12) + (-3 \times 4)$ illustrates the

- a) Associative Property of Multiplication
- b) Associative Property of Addition
- c) Distributive Property
- d) Commutative Property of Multiplication

Section 4

_____ 1. What is the simplified form of $(-5a^2 + 6a + 2) - (3a^2 - 4a - 5)$?

- | | |
|----------------------|----------------------|
| 1) $-8a^2 + 10a + 7$ | 3) $-8a^2 + 2a + 7$ |
| 2) $-2a^2 + 10a + 7$ | 4) $-8a^2 + 10a - 3$ |

_____ 2. What is the solution of $-17 = -2n + 13 - 8n$?

- | | |
|---------|-------------------|
| 1) -3 | 3) $-\frac{2}{3}$ |
| 2) 3 | 4) 5 |

_____ 3. Find the sum of: $(7x^2 - 8x^3 + 4) + (9x^3 + 2x^2 + 7)$

- | | |
|-----------------------|----------------------|
| 1) $-x^3 + 9x^2 + 11$ | 3) $16x^5 - 6x + 11$ |
| 2) $x^3 + 9x^2 + 11$ | 4) $x^3 + 9x^2 - 3$ |

_____ 4. What is the simplified form of $5x + 6 - 4x^2 + 3x$?

- | | |
|---------------------|---------------------|
| 1) $4x^2 + 8x + 6$ | 3) $4x^2 + 2x + 6$ |
| 2) $-4x^2 + 8x + 6$ | 4) $-4x^2 + 2x + 6$ |

_____ 5. Multiply: $(4x + 2)(2x - 3)$

- | | |
|--------------------|---------------------|
| 1) $8x^2 - 6$ | 3) $8x^2 + 4x - 6$ |
| 2) $8x^2 - 8x - 6$ | 4) $8x^2 - 12x - 6$ |

_____ 6. What are the solutions of the compound inequality?

$$4d + 1 \leq -3 \text{ or } 5d - 3 > 17?$$

- | | |
|-------------------------------------|-------------------------------------|
| 1) $d \leq -\frac{1}{2}$ or $d > 4$ | 3) $d \leq -1$ or $d > 4$ |
| 2) $d \leq 1$ or $d > 4$ | 4) $d \leq 1$ or $d > 2\frac{4}{5}$ |

